

## Chapter 24: Impacts on the Use and Conservation of Energy

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### A. PROPOSED ZONING ACTION (GENERIC ANALYSIS)

Adoption of the Proposed MOD Zoning will not directly cause an increase in energy (electric, gas, fuel) use as it does not involve project components that are to be immediately implemented. The impacts of energy use will be dependent on subsequent plan and site plan reviews. As summarized in **Table 24-1**, energy demand was estimated in Chapter 10, “*Energy and Telecommunications*,” based on a theoretical build out of the Proposed MOD Zoning that includes the proposed MOD Development Plan’s uses and densities and the remaining MOD density leftover if both Evergreen Manor and Gyrodyne are constructed as proposed (see **Table 1-1**, “*Project Description*”).

**Table 24-1**  
**Total Electric and Gas Demand**  
**for theoretical Build Out under MOD Zoning**

<b>Proposed Project</b>	<b>Total Estimated Electric Load Kilowatts (KW)</b>	<b>Total Estimated Gas Load Cubic Feet per Hour (CFH)</b>
MOD Zoning Theoretical Build Out*	9,336 KW	75,462 CFH
<b>TOTAL ENERGY DEMAND</b>	<b>9,336 kW</b>	<b>75,462 CFH</b>
<b>*Note:</b> Includes the total energy demand of the MOD Development Plan plus the estimated energy demand of the remaining density of the MOD Zoning.		

Following adoption of the MOD Zoning, any development or new construction that may occur will need to conform to recommended energy saving measures and “green initiatives,” as well as conform to applicable Town and State building codes and standards derived to maximize the economic and environmental benefits of energy conservation. The supplier will determine energy availability at time of request for service. The MOD Zoning is intended to encourage sustainable practices to positively impact energy efficiency and the effects of climate change, resulting in a more livable community.

### B. MOD DEVELOPMENT PLAN

As discussed in Chapter 10, *Energy & Telecommunications*, **Table 24-2** shows the total estimated electric and gas utility demand of the MOD Development Plan (Evergreen Manor and Gyrodyne

development proposals). The estimated energy demand of each individual site is also presented below.

**Table 24-2**  
**Total Electric and Gas Demand**  
**for Proposed MOD Development Plan (Evergreen and Gyrodyne)**

<b>Proposed Project</b>	<b>Total Estimated Electric Load Kilowatts (KW)</b>	<b>Total Estimated Gas Load Cubic Feet per Hour (CFH)</b>
Evergreen	4,503 kW	28,796 CFH
Gyrodyne	3,405 kW	40,460 CFH
<b>TOTAL</b>	<b>7,908 kW</b>	<b>69,256 CFH</b>

**EVERGREEN MANOR**

As discussed in Chapter 10, *Energy & Telecommunications*, based upon the proposed uses on the Evergreen Manor Project Site it is estimated that the project will result in the following electric and gas utility demands:

**Table 24-3**  
**Evergreen Electric and Gas Demand**

<b>Proposed Parcel</b>	<b>Proposed Use</b>	<b>Square Footage (Approximate)</b>	<b>Estimated Electric Load Kilowatts (KW)</b>	<b>Estimated Gas Load Cubic Feet per Hour (CFH)</b>
1	Restaurant	7,000	157 KW	2,277 CFH
2	Two-Story Retail / Medical & Dental Lab	30,000	760 KW	2,340 CFH
3	Five-Story Hotel (100 rooms)	68,000	1,156 KW	1,488 CFH
4	Residential (166 units)	168,000	1,594 KW	11,629 CFH
5	Assisted Living (120 units)	135,500	836 KW	11,062 CFH
<b>Total</b>	--	--	<b>4,503 KW</b>	<b>28,796 CFH</b>

All buildings will be designed to comply with the applicable New York State Energy Conservation Code and New York State Building Code. High efficiency Energy Star-rated consumer appliances, lighting fixtures and building mechanical systems will incorporate controls and operating strategies which will further minimize the consumption of electricity.

A number of sustainable measures will be incorporated into the final designs of the proposed site and uses. These may include the following:

- Proximate to public transportation with Bee Line bus stops within walking distance
- Highly Insulated Building Envelopes
- High-efficiency heating and air conditioning systems
- Plumbing fixtures that meet or exceed water conservation criteria
- Kitchen and laundry appliances that meet or exceed energy conservation criteria
- Automated and variable controls on general building systems and infrastructure
- Energy recovery systems and equipment for systems that serve common areas
- Acoustically sensitive building and systems design
- High-efficiency LED lighting fixtures
- Bicycle storage to facilitate non-motorized, car-free transportation within residential use
- Potential car-sharing service for use by apartment residents
- Use of native plantings, which require little or no irrigation or fertilization and less overall maintenance activities

## GYRODYNE

Based upon the planned land uses for the Gyrodyne Project Site, it is anticipated that the site will require the following electric and gas utility demands.

**Table 24-4  
Gyrodyne Electric and Gas Demand**

Proposed Parcel	Proposed Use	Square Footage (Approximate)	Estimated Electric Load Kilowatts (KW)	Estimated Gas Load Cubic Feet per Hour (CFH)
1	Medical Office Building w/retail (4 stories)	104,000 sf	@ 12 W/sf – 1,200 kW	5,565 CFH
2	Multi-family Residential (5 stories)	200,000 sf	@ 11 W/sf – 2,200 kW	34,700 CFH
1	Retail Space (1 <sup>st</sup> floor of medical office building)	4,000 sf	@12 W/sf – 5 kW	195 CFH
<b>Total</b>	--	--	<b>3,405 KW</b>	<b>40,460 CFH</b>
Note: Surface and subsurface parking lighting are included within the estimates above.				

A more precise estimate is not feasible at this time due to the uncertain nature of the equipment in use at the site. In both buildings, especially the medical offices, the electrical loads can vary significantly based upon the final equipment chosen and installed. While the final consumption values will depend highly on actual equipment selections and occupant behavior, this estimate should capture a conservative view of the anticipated electric and natural gas demand to feed heating, hot water, laundry, pool and cooking equipment.

It is premature to identify each specific “green” energy reducing strategy while the architectural plans are ongoing and being formulated. Specific environmentally friendly design elements will

be presented for Town approval during the site plan and building permit process. Gyrodyne anticipates that the following strategies will be evaluated and developed as means for reducing energy demands for the Gyrodyne Project:

- High-efficiency HVAC equipment
- High-efficiency boilers and hot water heaters
- Energy recovery ventilators and economizers
- Building energy management systems for HVAC and lighting systems
- Automatic occupancy and CO<sub>2</sub> controlled space temperature and lighting controls
- Daylight harvesting
- LED lighting fixtures
- High-efficiency water fixtures
- High-efficiency equipment (ex. Washers/dryers, refrigerators, computer, medical and entertainment equipment)
- High R-value materials for building envelopes, glass, ducts, pipes, etc.

In 2009, the Town of Cortlandt adopted the Climate Smart Community pledge, which guides local communities in their climate actions so that they may reduce greenhouse gas emissions and prepare for the effects of climate change. The program is designed to focus on ten pledge elements. In April 2014, the Town of Cortlandt officially became a certified Climate Smart Community. The development of the Gyrodyne Project is an important contributing part to the Town's designation of a Climate Smart Community and is consistent with its goals. One of the ten elements that comprise the pledge calls for the decrease of energy use. The Gyrodyne Project is helping the Town address this element in the following ways:

- The project is projected to achieve a minimum LEED certified rating. A number of various sustainable practices will be incorporated into both the interior and exterior programming to achieve the desired LEED rating.
- LED interior lighting and occupancy sensors to reduce electrical demand.
- LED lighting of the parking areas and urban green.
- Advanced interior air quality equipment and controls to reduce energy usage.
- Designated car charging and carpooling parking stalls.

Another element of the pledge that the Gyrodyne Project will be helping the Town follow and achieve is the use of climate-smart materials management. Both the medical office building and the multi-family residential building will be participating in on-site recycling programs in order to reduce waste.

One of the goals of the Town's 2016 Sustainable Comprehensive Plan is to improve the environmental sustainability of existing and new residential development. To achieve this goal, the Town has implemented a policy to promote residential renewable energy and energy efficiency practices such as solar, geothermal and the use of green roofs. As part of Gyrodyne's sustainable design, the medical office building will have a green roof. Having the green roof will serve several

purposes for the building, including absorbing rainwater, providing insulation, creating a habitat for wildlife, and helping to lower air temperatures.